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ABSTRACT

This paper discusses changes in technology in libraries over the last decade, beginning with an overview of the impact of databases, the Internet, and the World Wide Web on libraries. The integration of technology at Delft University of Technology (Netherlands) is described, including use of scanning technology, fax, and e-mail for document supply, development of a maritime knowledge center, and diversification of products and services. Pricing of new services and products is then addressed, including development of a model that breaks down costs and earnings, as well as the importance of this analysis for policy decisions, benchmarking, and accounting for government subsidies. The relationship between government and the market in the Netherlands is considered, focusing on the possible market role of a governmental body, i.e., the hybrid organization. The Delft Library, a hybrid organization, has chosen organizational sustainability, which blends subsidy and profit. The need to compete and make profit keeps the library on its toes, while a subsidy enables it to maintain an information infrastructure that is available to the community, thus preventing a social division between information "have's" and "have-not's." (MES)

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THE NEW LIBRARY, A HYBRID ORGANIZATION

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Paper read by Leo Waaijers, librarian of the Delft University of Technology, at the conference of the International Association of Technical University Libraries IATUL in Pretoria, South Africa. 2 June 1998.

In the last decade technology exploded into libraries. It impacted not only library work processes but imported also new strategic options. Library systems, i.e. databases, imported notions of project management and efficiency and resulted in catalog sharing. The Internet with Gopher and Veronica, brought co-operation in the field of document supply and collection co-ordination. The most consequential technology, however, is the Web. It combines instant publishing, hyperlinking, interactivity and multimediality. And it's so easy to apply. Numerous new actors will make their entry into the information chain which, of course, means competion. Libraries need to define their position in this Webbed World. They have to enter the market place at least partially which transforms them into hybrid organizations, both vanguard and debatable.

Databases

Once there were databases. Only very few people in libraries knew how to operate them. As alchemists they worked in a niche for a decade or so and their activities did not really impact their organizations. This was strange. After all, for centuries libraries had built paper databases of their book collections, which they called catalogs. Why not apply this new technology straight away? I have never found a satisfactory answer to this question.

But then in the eighties the new database technology (coined 'library systems') came to market . Libraries realized, sometimes pressed into action by their patrons, that they could not play dumb any more and massively they started to take these systems aboard. It was the era of grand library automation projects. This time the implementation of the new technology did have an organizational impact on libraries. Like ufo's in a rural community projects and project management were weird phenomena in these Mintzburgian machine bureaucracies. Concurrent with the automation projects, new managerial concepts such as project leaders, deadlines and deliverables entered the library. Quantification was introduced. We measured numbers of records, numbers of keywords per record, the size of a set, performances, keystrokes per second and so on. Often these figures were related to money and so, notions of efficiency rooted in libraries. From there it was a small step to ideas and practices of catalog sharing. As a strategic consequence, the phenomena of partnership and consortium became fashionable, often between libraries, sometimes between libraries and computer centres. Needless to say that thinking in terms of money and efficiency found an economical breeding ground in budgetary stringency since libraries were viced between monopolistic price increases by most publishers on one side and budget reductions by their universities on the other.

I am rather convinced that, at the time, most library workers have perceived this change as a one off operation. From now on their good old card catalog had been transferred into its digital equivalent, which certainly had some advantages. Every meaningful word in the title was indexed, Boolean

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searching became more than a theoretical notion and macro's made tasks simpler. But that was it. Staff members believed that, once the card catalog was automated, serenity would soon resume its dominant position in the library and traditions would proceed as usual.

Internet

However, before they got over the initial shock, the Internet broke out and 'telnet session' became the magic word for libraries. Now we could look into each others catalogs worldwide and Gopher and Veronica came to assist us to really trace these catalogs. As a direct result interlibrary loan boosted, especially when the remote catalog had a dedicated e-mail ordering facility. This time the strategic side of the coin was collection co-ordination. Practically, this came down to cancellations co-ordination as the exponential serials price increases endured. By tuning their cancellations libraries could mitigate the consequences thereof for their end users. Occasionally the wiseness of this frog cooking policy was and still is questioned. By the way, if you put a frog in cold water and then start to heat it slowly the frog will never leap. Nor did our end users, although in Delft for example, the number of subscriptions halved over ten years. This reflection, however, does not alter the achievements of libraries in the area of document supply and collection co-ordination. It was not unnoticed by publishers who scowled openly on and off.

The Web

Before we had time to really comprehend their historic meaning Veronica and Gopher were swept away by the World Wide Web with its graphical feasibilities, its hyperlinking facilities and its interactivity. I dare to call the Web a real sexy innovation, that is: it's appealing, easy and cheap and it procreates new actors.

It's not only libraries who are still trying to grasp the prospects, neither is it risqué to prophesize that the Web has the potential to metamorfosize the information chain. Everybody can easily become his own publisher and may include audiovisuals, executive programs and direct links to related objects in his publication. At the very moment the publication is completed one keystroke is enough for prompt worldwide access, complete with a direct interactive connection to the author himself. What more do you want?

All parties in the information chain are confronted with questions like: Where can we still render added value? What do we have to offer in the future? What is our position in the information chain?

The opposite question: 'Which behaviour will become obsolete?', is easier to answer. For publishers my guess would be: Sitting there, demanding exclusive assigment of copyrights in exchange for publication and consecutively abusing the thus acquired monopoly for price increases of 10% and up per year will no longer be accepted. And for libraries I would say: Sitting there, converting subsidies into static collections, building elaborate catalogs and further complacently enjoying a local monopoly, will no longer be accepted All parties have to realize what the Web does not offer and then base their contribution upon these omissions. In such an approach two values come to mind: quality and integration. Because the Webbed World is our contemporary Wild West these two values are not guaranteed, so, it's there where professional parties in the future information chain may find their mission. Traditional publishers have a lead when it comes to quality selection, whereas libraries are integrators by birth, but no doubt, both processes will have to be reshaped profoundly. The raw material will increasingly exist of open Web publications of widespread variety in quality and format. Publishers will have to trace the fruits in this wilderness just like their colleagues from the press have to select relevant press releases out of a daily flow of news signals. And no transfer of copyrights will be attached. As president Bill Clinton does not have to assign the copyright of his State of the Union to the New York Times in order to get it published, why should a scholar have to do so for his article? On their side, libraries have to face changes that are equally drastic. The Web dislocates important functions of a library. That is, libraries that are not present on the net are out, or stated in a hyped way: For libraries the only reality is the virtual reality. And there, in that fragmented new world chaos reigns. Compared to the monomedial paper world the polymedial society will show a patchwork of protocols, standards and formats. The strategic component of the Web is competition. The information chain is really compressed

and every actor can bypass all the others on the way to the end user. There, on the end users desk, all suppliers meet and rival on price, ease of access, recall and precision, and reliability. Some of these factors are, in principle, measurable and subject to benchmarking. Others, like reliability are at least partly related to trust and good experiences.

Delft

How does Delft anticipate this Web future? Again, there is the tangible technology on the one hand and the more abstract strategical level on the other. Integration is the keyword in either case.

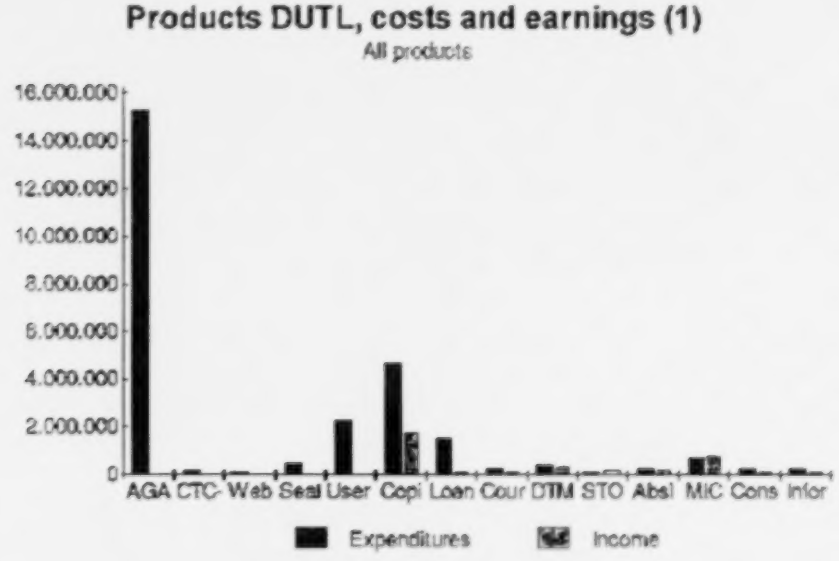
First then, briefly about technology. Bits are fine when it comes to production, transport and retrieval of documents. For serious storage, that is authenticity proof and durable accessible storage, bits are questionable whereas paper is proven technology. For study and reading paper is unsurpassed. Nobody wants to read a screen for hours. So, one of the basic integrations that libraries have to accomplish is bridging the gap between the lasting paper world and the empire of bits and bytes. The technology for both passages exists: in one direction it is called a printer and in the opposite direction it is a scanner, possibly in combination with OCR technology. An interesting application of scanning technology is what we baptised DocUTrans. Instead of making photocopies for document supply we now make scans. According to the preference of the client the machine will automatically send this image to the printer, in case the client wants a hard copy, or convert it into a fax format and send it to the client's fax adress or attach it as a pdf file to an automated e-mail message. The machine does the financial administration as well i.e. it keeps the receivable accounts ledger and prints an invoice or debits the clients' deposit account. To date almost 5% of our articles are delivered as an e-mail attachment, a figure that we expect to rise sharply when we start to offer this service all over the university campus later this month. Needless to say we are very proud that ETH Zurich will soon start to use DocUTrans and that other customers are seriously interested.
We also apply other integrating techniques, e.g. for automated indexing of both the full text journals and the databases that we offer at the university campus site we use Verity's Search '97 software. And of course we also apply the Z 39.50 browser for which we developed, under our own steam, firstly a Windows version in '95, making the step to the Web environment one year later. This Web version of Z 39.50 is also one of our available products.

But not every integration is purely technology based. A couple of years ago we acquired the Maritime Information Centre from a maritime foundation that was dissolved. It comprised two databases, a bibliographical one called Marna and another with descriptions of ships, called Shipdes plus a weekly issued collection of newspaper clippings. We combined the Centre with our own maritime collection and subsequently set up a call centre for all types of questions and searches in the maritime area. Next, we will add a database of all maritime research projects in the Netherlands and a tentative concluding step will be the setting up of an interactive maritime homepage for the Netherlands maritime world. Here integration is materialized by library intermediairies who are real experts in their field. If this new 'knowledge centre', as we have aliased it, turns out to be succesful, we foresee a development of the Delft library into a network of such knowledge centres.

This brings me to the most challenging long term consequence of the Web - the strategic one. It's name is competition. How do we anticipate that in Delft? Let me begin a couple of years ago when we more or less intuitively started to diversify our products and services. Apart from the products I allready mentioned, we started to give Internet courses and other courses in information retrieval, we accepted commissions to build specific databases and recently we set foot in the world of consultancy, insourcing and interim management. There is a heavy demand for these type of services as a direct consequence of the metamorphosis in the information world that is catalyzed by the Web technology. Both individuals and organizations feel that they cannot neglect this new development but, on the other hand, they are not sure how and where to apply it and what impact it will have on their organizations and processes. We do not pretend to have all the answers, but coping with the Web, organizing information and serving end users are our core business. Others know that and turn to us for support, advice or supply. And we try to meet their needs.

Pricing information

In most cases these new services and products are not for free since our subsidies have not kept pace with this new developments. On the contrary, budget reductions (and price increases) have forced us to discontinue services like building a national technical book catalog. So the new products must be price tagged. Next question: what price? The most frequently heard spontaneous reaction is: At least cost recovering. So the original question is replaced by a new one: What are the costs of a product or a service?
Last year we have answered this question in Delft. The problem to be solved was formulated as follows. The total income of the library for the year 1997 is 26 million guilders. At the end of the year all this money is spendt. In exchange we have given to the world a host of services and products. The project task was to develop a model that broke down all our costs according to products and services.



For that purpose we needed a catalog of all our products and services. So we made one, which is an interesting and useful exercise in itself. It turned out that we had 58 products but for the ease of reference I will limit myself to 14 products or productgroups in this presentation. Other aspects of the implementation of the project included the introduction of staff time keeping and a depreciation scheme for the library inventory.
Not surprisingly it turned out that our most massive product by far was AGAC, acronym for A Good Accessible Collection. That is the collection, including bibliographical databases and full text journals plus the OPAC. It costs 15 million which is almost 60% of our total budget. An interesting observation is that the purchase price of the whole collection is just over 7 million. This means that the process of selection, administration, cataloging, stacking - be it electronically or on shelves - and taking out, shortly transferring the purchased pile of information into a good accessible collection, more than doubles its value. AGAC generates no income. For people who come to the library access to the catalog, the databases and the electronic journals is free and so is borrowing of books and browsing journals that cannot be borrowed. So this product is fully subsidised. Another completely subsidised product is our Central Technical Catalog for Periodicals, a database that comprises the periodicals collections of over 100 libraries in The Netherlands and which we build in our capacity as the national technical library. Further our website, 1500 study seats spread all over the university campus and last but not least user support. This last service accounts for 8% plus of our expenses.
The common denominator of these products is their infrastructural nature. The costs show hardly any relation to the usage and there rationale is a political one. I.e. someone, in our case both the minister of education for our national role and the university board for our local task, decides to supply the community with a free information provision and they grant a mission subsidy for that goal.

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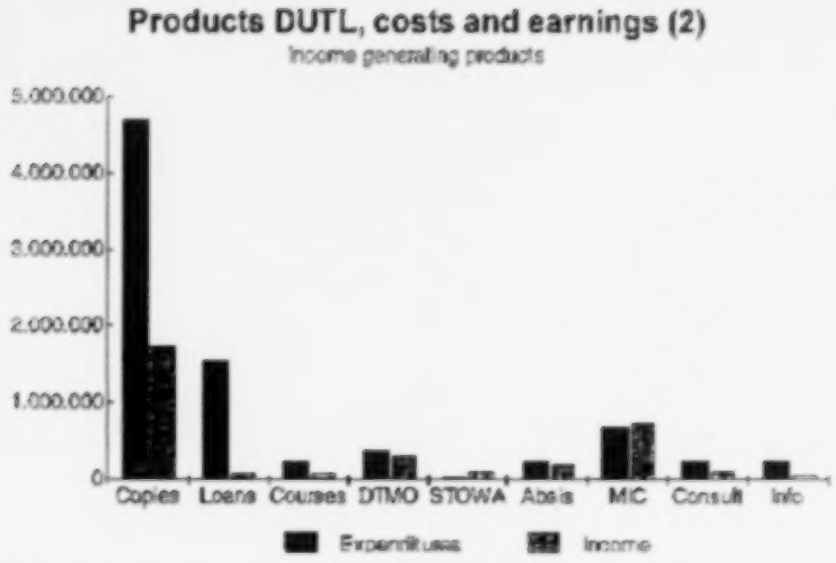

All our other products generate at least some income. The product related earnings account for 15% of our total budget. More interesting however is the percentage of cost recovery when we omit the infrastructural products i.e. when we restrict ourselves to the group of income generating products itself. Then we come to a cost recovery of 40%, meaning that 60% of these products is still subsidised. Noteworthy is that the income from copies covers only one third of the expenses. So, to become cost recovering this product should be three times as expensive, under the assumption that this causes no drop in demand. For your information, the current price is half a dollar per copy with a minimum of three and a half dollar. The income from loans cover less than 5% of its costs.
The products indicated with DTMO, STOWA and Absis all concern databases or derivates thereof. They nearly cover their costs. STOWA in fact is profitable, as is MIC, our aforementioned Maritime Information Centre.
Why do we think this is such an important exercise, the unearthing of our product-related costs, that is. There are a number of reasons. Firstly, it provides us with important information for policy decisions within the library itself. This information is instrumental, not to say crucial for decisions whether to start a product and at what price or to discontinue one. It does not mean that all products must be profitable from now on or even cost recovering. But if neither is the case at least we know how heavy it is subsidised. In the longer term we can follow how costs develop and thus become aware of the effects of efficiency measures and implementations of new technology within the library. Secondly, if other libraries did the same, these cost figures could play a key role for benchmarking purposes next to quality figures like delivery times, opening hours, up time of the catalog, last update of the homepage, quality of telephone reachability etc. This benchmarking provides important incentives to improve the library processes.
Thirdly, it enables libraries to fully account for the subsidies they are granted. In our case almost 80% of our subsidies are used for the information infrastructure mentioned above: i.e. for a good accessible collection, the central Dutch catalog of sci-tech journals, the study seats in the university, our website and for user support. The other 20% plus of our subsidies are mainly used to financially assist document supply (books and copies) but also for supporting other products such as courses, searches etc.

Hybrid

This insight places us in the core of a hot and topical debate in the Netherlands about the relationship between government and market. The central issue is a possible market role of a governmental body, the so called hybrid organization. The most rigorous participants in this debate reject such a role absolutely and advocate a strict distinction between the public and private worlds. They fear false competition as a consequence of cross subsidising i.e. abuse of public money for outpricing a potential competitor. Most participants however recognize that governments do subsidise anyway e.g. in the agricultural sector or in cases of so called vital industries. Also, cross subsidising is not unknown within big companies where

strong products support the weak ones, which of course may falsify competition as well. Currently, new rules are being prepared by the government for this complex economical field. They must regulate new situations for privatised governmental bodies like PTT, the railroad and others where a strong infrastructural component is to be combined with market activities. They will also apply to universities who operate more and more in the knowledge market. Needless to say that we will follow this issuing of rules with more than normal attention. Will the library as a hybrid organization be allowed and under what conditions?

Even if the first answer is yes, there is still a hurdle to overcome. Can the hybrid organization be stabilised? Quite a few organization experts predict that the subsidy and the market cultures are not compatible in one and the same organization. "Market will drive out subsidy" they say and they explain that the market side of the organization is so attractive to the better employees, because of result driven reward systems and other enticements, that at the end of the day only losers will man the subsidy side. I think that this view is based on an outdated and by now caricatural image of the classical civil servant. Today in the public domain notions of quality, efficiency, client orientation and innovation are just as highly valued as in the private world. On the other hand, profit is no longer the only driving force in many a company. More and more companies serve ethical values as well. I think that the common values in both worlds may give enough coherence upon which to build a stable hybrid organization. For such an organization sustainability is the keyword and this may be reached by a blend of subsidy and (decent) profit. It's the route the Delft library has chosen. The need to compete and make profit keeps the library on its toes while a subsidy enables it to maintain an information infrastructure that is available to the community, thus preventing a social division between information-have's and have-not's.

To conclude

A couple of years ago, more through intuition than awareness, we have answered the question: "Do, we have to wait lethargically while the Web enables everybody to become publisher, agent and librarian alike?". We took a proactive stance and broadened the scope of our products and services, even entering the marketplace to find out that we belong to a new species: the hybrid organization. It is a vanguard organisation type and in our case the thriving result of a xenogamy between the subsidised free-flow-of-information mother and a market driven information-as-an-economic-good father.

Delft, May 1998
Leo Waaijers

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